

WHAT IS CLAIMED IS:

1. A computer system transfers data from a first storage unit to a second storage unit via a network, said computer system comprising:

a first controller which transfers data stored in said first storage unit, to said second storage unit using a block transfer protocol;

a table which associates a file composed of a plurality of blocks of data with blocks of data constituting the file; and

a second controller which, in response to information that identifies a block from said first controller, identifies a file corresponding to the block using said table and transfers the identified file to said second storage unit using a file transfer protocol.

2. The computer system according to claim 1 wherein the transfer using the block transfer protocol is performed via a SAN (Storage Area Network) and the transfer using the file transfer protocol is performed via a LAN (Local Area Network).

3. The computer system according to claim 1 wherein, upon detecting a transfer failure when transferring data, which is stored in said first storage unit, using the block transfer protocol, said first controller notifies information to said second controller, said information identifying a block concerned with the transfer failure.

4. The computer system according to claim 3 wherein the identified file includes data of blocks other than the block related to the transfer failure.

5. The computer system according to claim 4 wherein the data of blocks other than the block related to the transfer failure is data that has been transferred by said first controller using the block transfer protocol.

6. A computer system that transfers data from a first storage unit to a second storage unit via a first network and a second network, said computer system comprising:

a first controller that transfers data, stored in said first storage unit, to said second storage unit on a block basis via the first network; and

a second controller that transfers data, stored in said first storage unit, to said second storage unit on a file basis via the second network,

wherein said second controller manages an association between a file composed of a plurality of blocks of data and the blocks of data constituting the file and, upon receiving information identifying a block from said first controller, transfers a file including data of the block to said second storage unit on a file basis.

7. The computer system according to claim 6 wherein, when the transfer on a file basis fails, said

second controller identifies a plurality of blocks related to the transfer-failed file and instructs said first controller to transfer data of the plurality of blocks.

8.           The computer system according to claim 7 wherein said first storage unit comprises a main volume and a sub volume that store the same contents of data and wherein, when a transfer of data, stored on said sub volume, on a block basis fails, said first controller notifies information identifying the block of transfer-failed data to said second controller and, in response to an instruction to transfer data of a plurality of blocks related to the transfer-failed file from said second controller, transfers data corresponding to the plurality of blocks, stored on said main volume, on a block basis.

9.           The computer system according to claim 6 wherein said first controller and said second controller are in the same cabinet.

10.          A data transfer method for use in a computer system, which has a second controller, for transferring data to another computer system, said second controller connected to a storage system comprising a storage unit and a first controller that manages data, stored in said storage unit, on a block basis using a block address, said second controller associating information identifying the block addresses with a file identifier for managing a file composed of a plurality of blocks

on a file basis, wherein, upon receiving information identifying the block address from said first controller, said second controller identifies a file identifier associated with the information identifying the block address and notifies information identifying a plurality of block addresses associated with the file identifier to said first controller and, upon receiving data corresponding to the information identifying a plurality of block addresses from said first controller, transfers data to said other computer system on a file basis with the file identifier attached to the data.

11. The data transfer method according to claim 10 wherein said second controller transfers a management table, which associates the information identifying block addresses with a file identifier, to said other computer when data is transferred on a file basis.

12. The data transfer method according to claim 10 wherein the information identifying a block address is a logical block address.

13. The data transfer method according to claim 10 wherein, upon detecting a failure during transfer of data to a storage system connected to said other computer system on a block basis, said first controller notifies the information identifying a block address to said second controller.

14. The data transfer method according to claim

10 wherein said computer system notifies information identifying a block address to said first controller to request to transfer data on a block basis.

15.           The data transfer method according to claim 10 wherein the data transfer on a block basis and the data transfer on a file basis use different networks.

16.           A program that causes a file server to transfer data to another file server, said file server connected via a fibre channel to a system comprising a storage area and a controller that manages data, stored in said storage area, on a block basis using a block address, said file server associating information identifying the block addresses with a file identifier for managing a file composed of a plurality of blocks on a file basis, wherein, upon receiving information identifying the block address from said controller, said file server identifies a file identifier associated with the information identifying the block address and notifies information identifying a plurality of block addresses associated with the file identifier to said controller and, upon receiving data corresponding to the information identifying a plurality of block addresses from said controller, transfers data to said other file server on a file basis with the file identifier attached to the data.